

NEWSLINE

Published weekly for employees of Lawrence Livermore National Laboratory

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The Castleers, a choir of Oakland high school students, performed during the afternoon's MLK activities.

JULIE KORHUMMEL/NEWSLINE

MLK celebration honors 'lives of significance'

By Sheri Byrd
NEWSLINE STAFF WRITER

"Successful does not mean significant. Which kind of life will you have?" belted Arthur Jackson, the motivational speaker who inspired the crowd gathered in the Bldg. 123 auditorium to celebrate the birthday of Martin Luther King, Jr.

Jackson's uplifting talk, "Hanging 'Round the Barrel: Leading a Life of Significance," followed the presentation of the winning student essays from the Lab's Affirmative Action and Diversity Program's annual Martin Luther King scholarship contest, which makes up

See *MLK*, page 8



Speaker Arthur Jackson discussed differences between successful and significant lives.

Science, technology awards honor Lab's crystal growth, laser glass melting processes

By Don Johnston

NEWSLINE STAFF WRITER

The "outstanding scientific and technical achievements" of two Laboratory research groups were recognized with LLNL's 2001 Science and Technology Awards at the LLNL Council on Strategic Science and Technology (CSST) meeting last week.

Director Bruce Tarter and Jeff Wadsworth, deputy director for Science and Technology, presented awards to scientists whose research led to a new understanding of biomineralization and crystal growth, and researchers who developed a novel, continuous melting process to manufacture laser glass for National Ignition Facility laser optics.

"The LLNL Science and Technology Awards were established in 2000 and are given annually for notable achievements in science and technology," said Wadsworth, adding that the recognition includes a monetary award and memorabilia presented to individuals selected by senior management and is part of the annual institutional awards program.

The research of the five-member group studying biomineralization and crystal growth has received international recognition from the scientific community and was written up in *Science* and *Nature*. Laboratory researchers worked in collaboration with scientists from the Virginia Polytechnic Institute and the University of Alabama.

"This is the culmination of a sustained effort that has its beginnings in the laser program," said Laboratory team leader Jim de Yoreo, explaining that the project was a spin off of research in crystal growth for NIF.

Team members include De Yoreo,

See *S&T AWARDS*, page 7

Three companies begin operations at TTEC site

By Anne M. Stark
NEWSLINE STAFF WRITER

The first three private companies have moved into the Tri-Valley Technology Enterprise Center (TTEC) at the Laboratory.

TTEC was created to help promote success of local start-ups and small business, and to act as a bridge between the local national laboratories and the region's technology community. The center provides business services, facilities, training, and access to advisers and mentors in areas such as business operations and management, technical specialties, sales and marketing, financial, legal and banking.

See *TTEC*, page 8

Teller takes the cake

Director Emeritus Edward Teller celebrated his 94th birthday Tuesday with Lab managers. From left are Steve Libby, Teller, Ron Cochran, Jeff Wadsworth and Michael Anastasio.



MICHAEL ANTHONY/TID



1954: Fast times for computing

— Page 3



Key milestone for NIF

— Page 4



CIO: Ban on wireless networks

— Page 5



LAB COMMUNITY NEWS

Weekly Calendar

Technical Meeting Calendar, page 4

Monday
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The Lab is closed in observance of the **Martin Luther King Jr. holiday.**

Tuesday
22

The Benefits Office is offering a workshop on the fundamental principals of investing titled, **"Basic Investment Planning and Savings,"** 8:30 a.m.-noon, or 1-4:30 p.m. at the Training Center. The cost of the workshop is \$45. Pre-registration is required. You can register by visiting the Benefits Office Website at www.llnl.gov/jobs/benefits and click on Seminars/Workshops or call the Training Center at 4-3849.

Wednesday
23

A representative from **Fidelity Investments** will be on-site to meet with employees today and Thursday. Fidelity Investments are available to UC's 403(b) participants in addition to the UC-managed investment funds. To make an appointment, call Fidelity at 1-800-642-7131. When calling, be sure to specify you are an LLNL employee.

Tuesday
25

The Benefits Office continues its brown-bag series on how to enhance your financial security by participating in the **Tax-Deferred 403(b)** with a session from 12:15 p.m.-1:15 p.m. in Bldg. 571, room 2301. Additional sessions will be held on the last Friday of each month (excluding November and December) throughout 2002. Attendance is open and no pre-registration is required. Bring your lunch and your questions. For more information, please see the Website at <http://www.llnl.gov/jobs/benefits>.



The **Eldercare Support Group** sponsored by Health Services will have a networking meeting at noon Tuesday, Jan. 29, in Trailer 6575 (between the Visitors Center and Credit Union). The agenda will be informal discussion of whatever you need to talk about. Family members of Lab employees and contract workers are welcome to attend. Badges are not required, and reservations are not necessary. Contact: Marnette Yeager, 2-1217.

...

The LLESA Rubber Stamping Networking Group is having a **stamp camp** on Saturday, Feb. 2, 10:30 a.m.-3 p.m. in the South Cafe. The theme will be "From the Heart." This hands-on training session will include different stamping techniques. The fee of \$15 covers the cost of materials for five different projects. Family members and other guests are welcome, but they must be pre-registered for access on-site. Non-US citizens must be met at the guard post and escorted during their stay on-site. Contact: Terry Griffin, 2-6684.

Science talk examines volcano monitoring

Robert Tilling, chief scientist of the U.S. Geological Survey's Volcano Hazards Team, will present "Challenges in Monitoring Hazardous Volcanoes" at 7 p.m. Thursday, Jan. 24, at Livermore High School, 600 Maple St., Livermore.

The lecture is the fourth in the popular "Science 2002 Lecture Series" sponsored by the Laboratory's Public Affairs Office.

Currently, Tilling is conducting research at Mount Hood in Oregon to determine the eruptive history of the volcano, which last erupted about 200 years ago.



Robert Tilling

06news/community/lecture.html.

He is also studying the global problem of volcano-related hazards, which become increasingly acute with world population growth and economic development. Despite ever-improving knowledge, the capability to reliably predict explosive eruptions still eludes volcanologists.

The lecture is free and suitable for anyone interested in science. Seating is available on a first-come basis.

For more information on this talk or upcoming lectures in the series, contact Kirsten Sprott of Public Affairs at 4-4822 or visit the Web at www.llnl.gov/llnl/06news/community/lecture.html.

RETIREMENT

Dorothy Freeman

Dorothy Freeman is retiring after more than 40 years at the Lab.

A retirement party is planned for her on Wednesday, Jan. 30, from 3-5 p.m. at the Career Center, Bldg. 415, conference room 218.

The cost is \$10 and includes appetizers, cake and gift.

RSVP by Jan. 23 to Sharon Giovannoni, 2-5571, or May Vander Mel, 2-9373. Checks may be made out to Sharon Giovannoni and sent to L-428.

IN MEMORIAM

Delbert Cruff

Delbert "Del" Francis Cruff, a former weapons engineer, died Dec. 18 of heart failure. He was 81.

Born Jan. 17, 1920, in Dinuba, he spent the majority of his professional career working in nuclear weapons design. Cruff started work under the Atomic Energy Commission for California Research and Development, a subsidiary of Standard Oil, in February 1952. CR&D was phased out of the AEC field and Cruff started work for the University of California Radiation Laboratory in March 1954.

Work in Device and Weapons Engineering took him to many of the AEC production agencies and to the Pacific Proving Grounds and the Nevada Test Site. During this time Cruff was a lead engineer for several military weapon systems and at the time of retirement was an associate division leader for Production and Stockpile in the Weapons Engineering Division.

Cruff was a registered State of California professional nuclear engineer. He retired in January 1982 and then was retained as an engineering consultant to help maintain the continuity of weapons design with new engineers.

"Del was very dedicated to the Lab," said his wife Sylvia. "He really enjoyed his work."

Cruff was an avid golfer and chairman of the Villages' men's executive golf committee for a year and a member of the committee for several more. He also enjoyed gardening and traveling.

In addition to his wife Sylvia, survivors include daughters Patricia Chance (also a Lab employee) and Myrna Stark; stepdaughters Barbara McDaniel and Rene Baron; step-son Bob Stevens; as well as 23 grandchildren and seven great-grandchildren.

He was preceded in death by his daughter Terrie Cardoza.

Services were held Jan. 5. Contributions in his memory may be sent to the Villages Medical Auxiliary, 5000 Cribari Lane, San Jose, 95135.

Richard McArthur

Richard D. McArthur, a Lab retiree, died in Las Vegas Nov. 12, 2001, following surgery and complications. He was 77.

"Mac," as many of his friends called him, was a geologist at the Nevada Test Site from 1959 until his retirement in 1988, and participated in many of the weapons tests and follow-up. He also authored several reports on drill holes at the site. His work included travels to Alaska, New Mexico and Washington, D.C.

McArthur was born and raised in Zanesville, Ohio, and graduated from the University of Ohio. He served in the Navy during World War II and was a lieutenant in the Merchant Marines.

He enjoyed model building, computers and playing the stock market.

Survivors include his wife, Barbara; six children, 12 grandchildren and six great-grandchildren.

Newsline

Newsline is published weekly by the Internal Communications Department, Public Affairs Office, Lawrence Livermore National Laboratory (LLNL), for Laboratory employees and retirees.

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1952 – 2002

MAKING HISTORY, MAKING A DIFFERENCE

IBM boosts Lab's computing capabilities

With delivery of the IBM 701 in 1954, the Laboratory dramatically improved its capability to perform scientific calculations. The machine was 12 times faster than its predecessor, the Univac-1, which the Laboratory acquired during its first year of operation. The Univac-1 was used to predict Eisenhower's landslide victory in the 1952 presidential election with only 7 percent of the vote tallied, but Livermore's needs quickly outgrew the machine's capabilities.

These machines marked the beginning of the Lab's not-so-coincidental links to commercial supercomputing — and the usage of machines to solve large, important and complex problems. As part of NNSA's Accelerated Strategic Computing Initiative, Livermore is home to the IBM ASCI White machine, the world's most powerful computer in 2002. Terascale computing capabilities keep the Lab at the forefront of scientific computing. They promise to help experts maintain the nation's nuclear deterrent and open many new avenues of scientific discovery.

This is part of an ongoing feature highlighting various aspects of the Lab's 50-year history.



The IBM 701 computer was delivered to the Lab in 1954 and was 12 times faster than its predecessor, the Univac-1.

speed is the name
of the game
1954

Around the world

- Dulles announces policy of massive retaliation
- Deliverable U.S. H-bomb tested at Bikini
- French defeat in Indochina
- Sun Myung Moon founds the Unification Church

Around the nation

- Army-McCarthy hearings
- In Brown vs. Board of Education, the Supreme Court rules that racial segregation violates the 14th Amendment
- Atomic Energy Act
- Elvis Presley records "That's All Right Mama" and several other singles

- Baseball legend Hank Aaron begins his career by joining the Milwaukee Braves

Around the Lab

- Herbert F. York is the Lab's director
- The Lab adds 123 employees to its Reactors Program, in addition to the existing 33 in Magnetic Fusion and 655 in the Nuclear Weapons, Research, Development and Testing Programs

in other

NEWS

Significant events around the world, the nation and at the Lab.



Send us your story

Do you have an interesting story about "life at the Lab?" The 50th Anniversary Committee is gathering human-

interest stories from employees, retirees and alums for "Fifty Years of Stories: Life at the Laboratory," a publication that will celebrate the people and experiences that have shaped Lab life.

Stories will either be included in the publication or posted on the 50th Anniversary Website.

Or, if you know an employee, retiree, or former employee who has an interesting story, we'd like to hear from them, too.

When submitting your story, please include your name, job title, phone number and email address.

Stories will be edited for length, grammar and punctuation, and fact-checked as necessary.

Interviewers will be available if you are unable to write your story.

Deadline: Feb. 15. Send your stories to Laurie Powers, L-664, powers12@llnl.gov. You may also submit stories on the Web at http://www.llnl.gov/50th_anniv/story.htm. **Questions?** Call Laurie, (925) 423-9868.

1952 to 2002

50 influential people who work at Lab

Your name (optional): _____ Your ext. _____

Who: _____

Why: _____

Comments:

Return form to: _____
Newsline
Attn: Lynda Seaver,
L-797



Lawrence Livermore National Laboratory

Making History Making a Difference

1952-2002



NEWS YOU CAN USE

Scientists' simulation sheds light on black holes

By Ali Carrigan

NEWSLINE STAFF WRITER

Lab employee Chris Fragile presented preliminary findings at last week's annual meeting of the American Astronomical Society that showed the association of unique gas flows to rapidly rotating black holes.

This research, done in conjunction with Lab employee James Wilson and University of Notre Dame professor Grant Mathews, is of special interest to organizations like the National Aeronautics and Space Administration (NASA) because it may help explain unusual periodic timing properties seen in the X-rays being emitted near many suspected black holes.

Fragile explained that the trio's work centered around a computer simulation of the way these unique gas flows act in the vicinity of black holes.

"Much of what the NASA Observers look for are X-rays, and the black holes produce a lot of that,"

Fragile said. "We're hoping to simulate a system similar to what a NASA Observer might see when it looks at a black hole."

The work is based in part on Einstein's Theory of General Relativity; that is, rotating black holes will "drag" space-time around them, much as a tornado funnel cloud would. Any material falling toward the black hole will be caught up in this space-time whirlwind as it spirals ever closer to the black hole. Fragile, Wilson and Mathews also relied on previous research that found that gas falling into a black hole from a companion star possesses angular momentum, making it orbit the black hole in a disk-like pattern.

Recent advances in X-ray astronomy, such as the Rossi X-ray Timing Explorer (RXTE) and Chandra X-ray Observatory missions, make this a particularly fruitful time for theoretical work in this field.

"Our present work is an attempt to gain a better understanding of the motion of gas in the vicinity of rotating black holes through the use of extensive com-

puter simulations," Fragile said of the research. "Simulations such as ours are critical since these environments are too complicated to study by any other means."

In their previous work, Fragile, Mathews and Wilson have suggested the so-called quasi-periodic brightness oscillations (QPOs) seen in the X-ray emission of many black-hole candidates may be related to this disk-like orbiting. In particular, one black hole in the Galactic X-ray source GRO J1655-40 (also called X-ray Nova Scorpii 1994) appears to be spinning very rapidly and seems to have an outer disk that is tilted relative to the angular momentum of the black hole. The current simulations being done are a first attempt to model the complicated disk dynamics around this object.

"Eventually, we'd like to simulate something the observers can go out and test, but we're not there yet," Fragile said. "We think that this simulation is the first step toward that."



FRANK NUNEZ/TID

Employees at the National Ignition Facility were recently honored for the completion of conventional facilities, a milestone that was reached on Sept. 28. Above, NIF Program Manager Ed Moses was awarded the 'keys' to the NIF building. At right, representatives of the various NIF construction teams were honored for their work.

Celebrating the house that NIF built



JULIE KORHUMMEL/NEWSLINE

Technical Meeting Calendar

Friday
18

INSTITUTE FOR GEOPHYSICS & PLANETARY PHYSICS

"Cosmic Dimples: Where Next for Galaxy Clusters?" by August Evvard, University of Michigan.

Noon, Bldg. 319, room 205 (badge required). Contact: Adam Stanford, 3-6013.

DEFENSE & NUCLEAR TECHNOLOGIES

"Blue Gene/L and Stockpile Stewardship," by David Nowak/Mark Seager/Lynn Kissel. 10:30 a.m., Bldg. 123 auditorium (badge required). Contacts: Linda Stuart, 3-7001, Mark Herrmann, 2-6999.

Tuesday
22

CHEMISTRY & MATERIALS SCIENCE

"The Effects of Elastic Stress on Coarsening Kinetics and

Microstructural Evolution," by Alan Lund, Northwestern University. 10 a.m., Bldg. 235, gold room (uncleared area). Contacts: Mukul Kumar, 2-0600, or Roberta Marino, 3-7865.

Friday
25

INSTITUTE FOR GEOPHYSICS & PLANETARY PHYSICS

"High Redshift Quasars as a Probe of the Early Universe," by Robert Becker. Noon, Bldg. 319, room 205

(badge required). Contacts: Adam Stanford, 3-6013, or Josie Morgado, 4-5201.

MATERIALS SCIENCE & TECHNOLOGY

"Experiments to Validate Multiscale Modeling," by Anthony D. Rollett, Carnegie Mellon University. 3:30 p.m., Bldg. 235, room 1090 (uncleared area). Coffee and cookies will be served at 3:20 p.m. Contact: Thomas E. Felter, 2-8012.

Wednesday
30

PHYSICS & ADVANCED TECHNOLOGIES

"Shock and Cold Fronts in the Intracluster Medium: A Window onto Cosmological Perturbations,"

by Ben Mathiesen, Stanford University. 1:30 p.m. Bldg. 211, room 227 (badge required). Contacts: Dennis McNabb, 3-0749, or Pat Smith, 2-0920.

Thursday
31

INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH

"What's New with the Wave Equation," by Thomas Hagstrom, University of New Mexico.

10 a.m., Bldg. 451, room 1025 (property protection area). Contacts: David Brown, 4-3557, or Leslie Bills, 3-8927.

The deadline for the next Technical Meeting Calendar is noon, Wednesday.

NEWS OF NOTE



Ban on wireless computer network communications

Wireless computer network communications have the potential to increase productivity by enabling access to network information without the constraints of wired network connectivity. The computer industry is delivering an increasing number of products equipped for wireless communication; and those products are beginning to make their way into computer networks at LLNL.

The down side is that the very attributes that make wireless network communication attractive create serious security issues for protection of those networks and the information they transmit. As a result, LLNL's Computer Security Council has placed a temporary ban on the deployment and use of all wireless computer local area networks (LANs) in LLNL's Open and Property Protection areas. DOE already prohibits the use of wireless LANs in Limited and Exclusion areas. This policy (P-2027) specifies:

"Any program/directorate with an existing wireless LAN in these [Property Protection] areas must disconnect it from all LLNL institutional networks (if applicable) and obtain an approved exception to this policy before resuming operation of the LAN. Proposed wireless LAN pilot projects must obtain an approved exception to this policy before beginning operation and be dedicated to addressing wireless security issues."

Requests for exceptions to this policy must be



CIO UPDATE

—BY TED MICHELS

submitted to the CIO through the Computer Security Operations (CSO) office. The application form is available at <http://www-r.llnl.gov/cso/Pubs/u-docs/F2027.pdf>. Exceptions to the DOE prohibition of wireless LANs in Limited or Exclusion areas are made only in specific cases involving stand-alone unclassified networks or control systems that have received a special DOE waiver.

Why?

Wireless network technologies and their built-in security features have been found under testing to be very insecure. For this reason, LLNL has made the decision to control the deployment of wireless technologies until solutions can be found to address their security vulnerabilities. This policy will make it possible for LLNL to control on-site use of wireless technologies while conducting CSO-approved pilot projects to make assessments of their limitations and benefits.

Recommendations regarding future use of wireless technologies will come out of the experience and knowledge gained from these assessments.

Implementation

This policy is effective immediately. Any wireless LAN found to be not in compliance with this policy will result in notification of the cognizant associate director and CIO and disconnection from institutional networks until the LAN is brought into compliance.

Scope

The following wireless technologies are not covered by this policy:

- cell phones and PCS (Personal Communications System) devices
- pagers (one-way and two-way)
- two-way mobile and portable radios
- point-to-point voice, video, and data communications systems
- computer keyboards
- computer mice

Questions regarding this policy can be addressed to Barry Howard at 2-4030 or bhoward@llnl.gov.

Ted Michels is the principal deputy associate director for Computation and LLNL's acting chief information officer (CIO).

Protective Force officers remind bicyclists to ride by the rules

In addition to his many other duties, Protective Force Lt. Mark Short is an active member of the Lab's Traffic Safety Committee. During a recent monthly meeting he voiced a concern to remind employees who use bicycles on site that, while doing so, they must obey all the provisions of the California Vehicle Code. Because traffic is part of his business, Short explained some relevant sections.

Short said, for instance, that bicycle riders are subject to the same rights and responsibilities as the drivers of motor vehicles. This includes obeying all traffic signs and signals that motor vehicle drivers must heed.

Additionally, he asked bicyclists to ride as reasonably close to the right shoulder of the roadway as possible when not using bike paths. Another unsafe riding practice prohibited by the code states that "no person operating a bicycle shall carry any packages that would prevent the operator from keeping at least one hand on the handlebars."

Riding at night

PFD Sgt. Robert Leal also reminded employees that Lab bicycles are not equipped with head-lamps and proper reflectors. Because Laboratory bicycles lack such devices, they are not to be used during the

hours of darkness.

Approaching security kiosks

Also, while approaching security kiosks, bicycle riders are asked not to ride between the kiosk and a vehicle that is undergoing a badge check. Avoiding this position protects both the officer and the bicyclist. Bicyclists also are asked to come to a complete stop — with at least one foot on the ground — when having their badges checked. "Riding through slowly, or doing a 'balancing act' to attempt a stationary position are not only unsafe practices," Leal added, "they also do not allow for a proper badge check."



With the current power shortages in California, please turn your computers and other electronic equipment off when you leave your work area.

Not only does this save power, it is also an excellent computer security measure. One should never leave a computer powered up and unattended for long periods of time.

Getting a look at the Lab

Members of Congresswoman Ellen Tauscher's staff came to the Lab Wednesday to learn about Lab programs and tour various facilities, including the National Ignition Facility. It was the first visit for many of the staff members.

JACQUELINE MCBRIDE/TID





CLASSIFIED ADS

See complete classified ad listings at
<https://www-ais.lnl.gov/newsline/ads/>

AUTOMOBILES

1996 - VW Jetta GL Sedan 4D 5-speed, AC/PS/TW, AM/FM stereo cassette. 115K Good condition. \$6150 OBO. 925-513-3193

1994 - Mercedes Benz C220, Loaded, Auto, Sunroof, 30 MPG, A/C, 80k Mi, Mint cond in/out, Garaged, Must See, only \$14,500. 209-234-0370

1985 - BMW 4 door smogged and tagged. Good condition. 209-858-0099

1988 - Mercury Sable Wagon. 118K. 20mpg, new tires. Nice interior. Ugly paint. \$950 obo. 209-823-8309

1997 - VW Passat TDI diesel, 4/dr, 5/sp, a/c, sun roof, 54k, great mileage, low blue book, \$9,999 510-339-9106

1995 - Buick LaSabre Custom 4DR Sedan with only 27K miles. Very good condition, very comfortable, all accessories. \$5,400. 925-443-6872

1994 - Dodge Grand Caravan, runs/looks great, rear A/C, P/S, P/B, P/L, C/C, quad seat-ing, smogged, 1 owner, high miles, \$2500 OBO. 530-478-9658

1996 - Mustang GT, blue. Good condition. Need to sell, just had baby. Asking \$9K OBO. 209-530-0417

1988 - Toyota Camry LE, 157K miles, 4 cyl, auto. trans, very good condition, light blue, moon roof, all power options, \$3000 925-449-1861

2000 - Grand Prix GTP, lmt. ed. daytona 500 pacecar, supercharged, heads-up display, sunroof, Bose stereo, auto, loaded, 13k miles, \$20k 925-455-0418

1997 - Honda Civic EX, Blk, 60K miles, 2dr, 5spd, 4cyl V-Tech, CD changer, A/C, pwr everything, mn/rf, keyless/entry/alarm, warranty, much more. \$11,750 obo 925-373-1279

1999 - Ford Escort SE fully loaded A/T, A/C, CD chng, Pwr everything. 40K mi. White. Like new. Low Blue book \$8455, seller asking \$8000 OBO. 925-447-7897

1995 - Ford Explorer - Excellent condition. All power. Cassette, Tow Package and extras. New tires. Asking \$6,500.00 OBO 510-537-7222

1989 - Volvo 740 Turbo. Great commuter car. Very clean. 144k miles. \$3990 OBO. 209-833-7257

1997 - Subaru Impreza Outback Sport wagon, 80K miles, great condition. Asking \$10,000. 925-371-1607

2000 - Honda Civic EX Coupe, 40K mi., excellent condition, 5-speed, silver, sunroof, air, power windows, cruise, CD, \$13,000 OBO. 510-338-1199

1998 - Toyota Camry LE beige, 69K mi, 4cyl, AT, AC, CC, airbags, PL, PW, new timing/drive belts, excellent condition, extended warranty, \$13,500/OBO 925-449-3821

1991 - Toyota Previa Van LE, power locks and windows, AM/FM/Cassette, auto, white, AC, cruise. Well maintained. \$5500. 157K miles. 925-516-7239

1989 - Honda Accord, grey, 4-door, 5 speed, 125k, runs good, \$1000.00 209-823-8767

1989 - Pontiac Bonneville LE, power door locks & windows, excellent 3.8 liter engine & auto trans, new paint - \$1750 OBO 925-829-1794

1998 - Honda Accord EX V6, Black/grey leather, 78,000 mi. CD, moonroof, security, all power, all maintenance, excel. cond., \$13500. 209-835-6062

1998 - Honda Civic Good Condition \$7100 925-640-7053

1995 - Nissan Maxima GLE, Red/Blk leather, AT, AC, Moon Roof, Alloy wheels, CD player, 70K mi, \$11,000. 925-938-6789

AUTOMOBILE ACCESSORIES

4 stock rims for Dodge Ram, 2 chrome/round nerf bars...\$100 or b/o 209-521-5062

Tires 265/75 16 inch mud and snow mounted on 6 lug aluminum alloy wheels off 2001 Chevrolet 4x4. \$250 925-447-4611

New Chevy Fast Burn Aluminum Cylinder Heads for small block, still in box. \$975.00 OBO. 925-373-1089

BICYCLES

Free Agent BMX Chromoly frame, sealed bearings, 3 piece crank, pads 1yr. old \$300 209-835-2416

BOATS

MacGregor Sail Boat, 26 ft, galley slps 6 w/sm sink, 2 bnrn alcohol stove, & portable toilet, Sail: main and Genoa, easy to

trir, \$6500 OBO. 209-881-0607

91 Reinall 173 I/O OMC 4.3 Litre V6. Excellent Cond. low hrs. custom cover. \$8200 OBO. 925-245-1414

CAMERAS

Olympus E-10 digital accessory lenses: TCON300, TCON14B, WCON, MCON. Original packaging, warranties, receipts. Like new. Half price. 510-226-7440

ELECTRONIC EQUIPMENT

Macintosh Centris 610 w/mouse, keyboard, upgraded memory and office/game software packages \$100.00 925-373-6492

Visioneer 6100 USB flatbed scanner for Win98, 600 x 1200-dpi optical resolution, 36-bit color. \$20 OBO. HP660 Color Inkjet Printer \$20 OBO. 925-245-9648

JVC 12 disc changer for car. Model #CH-X200. Only 1 year old. Asking \$100.00 OBO. 209-833-8306

VANDERSTEEN 2ci high-end speakers with stands. Excellent Condition. \$515 OBO. 510-531-4668

Nintendo 64 2 controlers 6 games and game shark 130.00 obo 925-443-2173

GIVEAWAY

FREE 110 gallon aquarium with stand / small leak that can be repaired / good for reptiles or whatever 925-454-1969

FREE wood from dismantled redwood deck and overhead shade structure. 925-449-0617

Sony 27 inch Console TV. Tuner needs works. Good Picture. 925-606-6422

HOUSEHOLD

Solid medium oak entertainment center. Fits up to 29 inch TV. 250.00 or B.O. 209-824-3176

Desk, 8-drawers 24x53x30 \$100.00. Oak computer stand 26x20x29 w/casters, pullout keyboard and additional shelf \$50.00. 925-373-6492

Pine Workstation Bunk Bed. Great work area under twin size bed. Great for middle school-college age. 83Lx42Dx70H. Incl. mattress \$100. 209-832-8541

Blood Pressure Monitor, one step auto inflation, like new \$50, Samsonite 24 inch hard-side suitcase (wineberry) \$35 925-447-8613

TABLE-smoked glass, 48 inches dia with 4 chairs. Oak and brass. \$75.00 209-823-5845

Wood desk \$30, Straight back chair \$10, Computer stand \$10 and moving boxes all sizes \$50 925-600-0604

Samsonite softside hanging suitcase. Essentially new condition. Large model with all the compartments. \$40 925-455-5439

Admiral side by side refrigerator. 21.6 cu. ft. Designer Series model, 6 years old yet like new. \$500.00 209-578-3668

Single white rod iron bed and mattress with comforter and sheets to match. Only used a few times. \$150 925-443-0288

Whirlpool freestanding dishwasher in good condition \$50 925-447-5303

KITCHEN APPLIANCES: Stand Mixer 4.5 qt bowl \$50, Electric Takka Pasta maker \$50, Oster 2 lb. Bread Machine \$40, Hardly used excellent condition 209-823-3211

Claw foot bath tub, good condition. \$200.00 or make offer. 925-447-6942

Austroflam Integra E 10800 pellet stove. \$200 OBO. 925-447-8251

New! Queen size mattress and box springs \$200. 925-756-2253

LOST & FOUND

Found near T-3577, one 1/3 carat diamond ear ring on hoop with clasp 925-443-7828

MISCELLANEOUS

Motor home, 90 Jamboree, Rallye. 24 1/2 ft., full bed, microwave, generator, full awning, 5 new tires, 2 new batteries, \$14,500, 20.253 mi. 925-447-1949

Antique 4-drawer dark oak dresser with lead mirror \$150.00 925-373-6492

Big Jake battery-run ride-on truck for kids. Works great, looks almost great. Forward and reverse. \$30. 925-455-1547

Antique Typewriter, 1937-39 Underwood Champion. \$20 OBO. 925-245-9648

40 Beer bottles (Grolsch) with integral spring-loaded porcelain caps and rubber seals. Ideal for home brewing. \$1 each/BO. 484-1319

Learn to Square Dance with the Pleasanton Singles Square Dance Club - Lessons Starting 925-447-8613

Beautiful china setting for 11, includes a creamer, sugar bowl and serving dish. \$350.00. Oak entertainment unit 6f x 5f. \$250.00. 925-447-8291

Bike Trailer (great condition) fits 2 toddlers \$100 OBO 925-449-4887

Old Navy relaxed classic fit womens jeans size six long. Dark denim, only been worn a few times. \$10. 925-443-2334

BABY ITEMS: Aprica Double Stroller \$170. Fisher-Price Bouncy Seat \$20. Graco Infant car seat w/2 bases-Barclay pattern \$40 209-823-3211

Bang & Olufsen Form 2 headphones. \$50. 510-531-4668

NEW! Anniversary band 1/2 ct. channel-set princess cut diamonds in white gold. Never worn. Quantity 2. \$399 each. Have original receipt. 925-756-2253

Drafting board parallel edge and Borco self-sealing drawing board cover. \$40. 925-245-4570

MOTORCYCLES

2000 - Honda CBR 600 F4, 8000 miles, Red & Silver, Vance & Hines pipes, great Condition, never been down! \$6500.00 or BO 925-634-8523

MUSIC INSTRUMENTS

Violin, full size, bow and case included, good student instrument, fine cond. \$200 510-581-7553

Amplifier for electric guitar, older model Mustang 65. Works great, excellent condition. \$200.00 firm. 925-447-6942

Fender Precision Special electric bass with hard shell case and strap, sunburst w/ black pickguard. Good condition. \$225.00 925-447-3387

I am looking for drum kit (acoustic or electronic) for a beginning student. Please contact me at 925-648-5113

PETS & SUPPLIES

Wood double rabbit cage on legs that sold for \$150.00. Asking \$50.00. 510-357-4969

2 adorable dachound (winner doggy) 8-weeks. old asking \$150.00 no papers. but full breed. blk/tan. 209-521-4846

Maltese. Male, AKC. 2 yrs old. Free to good home. 925-642-5339

10 month Registered German Shorthair Pointer, Liver/Ticked. FCH Snappy Tom Bloodlines. Started Obedience Training. 209-869-5362

Blue Front Amazon-hand tame & talks. Cage plus toys and supplies. \$400.00. 925-294-8632

Parakeet, small, teal male, 1 1/2 years old, with cage, #25.00. 925-706-2088

House cat - free to good home, white short-hair female, 3yrs old, spayed, declawed, loving 209-599-1955

Horse Boarding - 2 ac. pvt. Pleasanton orchard pasture, shelters, cyclone fences, \$150 per month includes grass hay and alfalfa twice a day. 925-443-6531

29gal established African tank: real driftwood; live plants; killifish. With matching stand. Gorgeous! To good home. \$125 OBO. 925-454-9116

RECREATION EQUIPMENT

Weider PowerMax 3 station HomeGym w/200 pound bench press \$175.00. NordicTrack \$150.00. 925-373-6492

1992 Seadoo SP jetski in great shape. I have tree of them but can only haul 2. \$2,500. 209-887-3029

Kawasaki 440 stand up jet ski, \$800.00 or B/O, motor and body in excellent condition, only used 3 summers. Has been in storage. 209-537-4614

Baby Jogger (great condition) \$100.00 OBO 925-449-4887

93 Yamaha Wave Blaster with about 50 hrs. of use, w/ 95 shorelander trailer. Asking \$2400 510-690-1401

Exercise equipment-New Proform Elliptical trainer with digital display. \$200. New! Weider weight bench w/straight and curl bar and weights \$100. 925-756-2253

Gravity inversion boots. \$35 925-245-4570

RIDESHARING

Express your commute, call 2-RIDE for more information or visit <http://www-r.lnl.gov/tsmp>.

Orinda-Moraga-Lafayette - Lamorinda carpool needs 4th rider/driver. Lab hours 8:15am-5pm. Departs/returns to St. Stephens and Highway 24 in Orinda. 925-253-0498, ext. 2-9823

TRACY - Carpool looking for passengers. Hrs 8-4:45. 209-833-1201, ext. 2-9955

Modesto - Luxury van. 14 psgr. 8 - 4:30 schedule. \$110/mo. plus other \$\$ off for transit pretax and if you want to share driving. 209-521-9047, ext. 2-5177

Sacramento - Moving to Sacramento area in February. Looking to join vanpool/carpool. Call if you have a spot. THANKS! 209-823-8309, ext. 2-3399

Modesto - 8-4:30 luxury van leaves from Vintage Fair Mall with drop off and pick-up near office on site. 209-545-3866, ext. 3-8056

SERVICES

Childcare available in a loving home. 15 years experience in providing licensed childcare. References available. Age 1 or older. 925-455-9076

TUTORING in high school and college math and chemistry. 925-443-2095

Concrete: Custom, stamped, colored, foundations, flat work & more. Have portfolio. Over 20 years experience. Free Estimates. 209-833-8309

CoDA Codependents Anonymous - Meets Tuesday Noon B571/R2016. 12 Steps Support BETTER RELATIONSHIPS! Just come or Info 925-447-7070

Headshot Photography - B&W Portraiture for Actors, Entertainers, Dancers & Musicians. J 925-449-0107

Housekeeper looking for work. Please call 925-373-1113

SHARED HOUSING

Livermore - Room in 3bd/2ba home full privileges \$575.00+/1/3 Utilities close to Lab great location N/P N/S. 510-305-9791

Livermore - Room for rent. Quiet south side neighborhood. Shared bath and full house and laundry privileges. Female N/S. \$550/mo +1/3 utilities. 925-606-0850

Tracy - Country living on 3 acres in Tracy. Share a house for \$400 + 1/2 utilities. Or park your motor home for \$200. 209-835-3352

Livermore - 4 bdrm house, looking for 1 roommate who will have 2 bedrooms and private bath, all privileges. \$500/mo 925-449-5454

Livermore - Unfurn. Rm for rent. Neat/Clean home. \$550 Includes util. \$300 deposit. NS,ND,NP. Kitchen/Laundry privileges. 10 min. from Lab. 925-447-8698

Livermore - Share 2 bedroom townhouse 3 mi. from Lab. Unfurn. rm/with semi-private bath. NS/NP. Util. includ. \$600 mo. plus last mo. rent 925-443-1482

Livermore - Furnished room w/own bath in clean secure 4BD/2BA home 4 mi to Lab. Full privileges. NS N/P \$600 incl util 925-449-8034

Livermore - Rooms for rent. Completely remodeled and very elegant. Wonderful area/south side/quiet. 800+/mo. Share utilities. cell 925-382-6774; 925-292-5041

Livermore - Room in newer 3bd/2ba home, Full Privileges, \$500m + 1/3 utilities. Great Location, Quiet, Clean, and Comfortable. Pref-Female, N/S, N/P. 925-371-2712

Livermore - Renting Room, 500.00 + Utilities, Eastside, 2.5 Miles from Lab. Marlo 925-447-7862

Livermore - Unfurn rm w/ semi-private bath. Kitchen and Laundry priv. Cable and separate phone hook-up. Utilities inc. \$600 mo. 925-449-1474

Livermore - Room for rent. good east side neighborhood. \$460/mo. small room, furnished, utilities included. smoker okay. 925-447-6218

Dublin - Share rental in a 3 bedroom apt. 1 room, private bath, full washer and dryer in apt. nice quiet complex. 700.00 plus 1/2 utilities. 925-803-1028

Modesto - Room for rent-\$300.00 includes utilities except phone. Separate

bath, house is clean. Pet okay (I have one dog). 209-537-8458

Livermore - Livermore, 4bd/3ba, bedroom and bath, kitchen and laundry priviledged. Woman preferred. One mile from Lab. \$600 + 1/3 PG&E. 925-443-8581

Livermore - Room in 2BR/2BA home, private bath, full privileges, HS internet, N/S N/P; \$600 + Dep + half utilities. Quiet, clean. 925-373-3168

TRUCKS & TRAILERS

1986 - GMC, short-wide bed, very good cond. looks great 305ci. auto, air, am&fm-cd, alum wheels, custom grill, rolled pan. more. \$3500 b.o. 209-839-1375 209-836-0611

1976 - Chevy Step side. 450HP. White/blue. New Everything, clean inside and out. good stereo. seller asking only \$7000. 925-216-3505

1997 - Chevy Blazer, 4WD XLT, white w/grey leather, 85K miles (warranty to 96K) new trans, Loaded, CD, Power Everything. \$13,500 OBO 925-352-5987

91 - Chevy 4x4 pickup, silverado, CD, 40w/channel stereo, blue, good tires, bed mat, \$7,500 925-443-8585

1990 - GMC 2500 Ext-Cab 4X4 SLE short box with snugtop shell. Lots of new parts and new GM motor. Looks and runs great \$6,500. 209-887-3029

1991 - Regal 5th wheel by Prowler. Kitchen, slide-out, bathroom, A/C, gas or electric refrigerator, in GREAT shape! 925-240-5482

1984 - Must Sell, 4*4 Ford Bronco, low miles on rebil. motor, Automatic Tran, RollBar, CD Player, Tow Package, Running Boards, good condition. \$3000.00 925-381-2359

1975 - Rollalong, 460 Ford engine, called the best motorhome from the 70s. Class C, always garaged, immaculate!, 79k miles, well-maintained. \$4750/offer. 925-455-5439

1994 - Ford F150, 66k miles, shortbed, dual tanks, 4.8 F/I, 5sd. man trans, bedliner, am/ fm/cd, new tires, red w/gray int. good cond. Below blue book, \$7400. 510-708-0701

1996 - Dodge Ram 2500 3/4 Ton, Club Cab, Long Bed, 2WD SLT, Plus Running Boards, Bed Liner, Bed Cover, HD Hitch, Etc. 107,000 Mi \$9,750. 209-962-7431

1990 - 1990 Jeep Cherokee Laredo, loaded, very good cond. 98000 miles, \$3800 or trade for boat. 209-836-0611 209-836-0611

2001 - Ford Ranger Super Cab 4WD. Edge. AC, All power, Auto. Less than 7k miles. Blue Book 22,715. Asking 20,500. Must sell. 925-443-4639

1981 - Chevy Cheyenne 4x4, 4in. lift, 33in. tires, dual tanks, rebuilt trans, orig engine 157K, 5,500 OBO 925-437-2522 925-828-4937

1987 - Suzuki Savage 650cc, 6K miles, \$1000/obo 925-447-0220

VACATION RENTALS

Mauli, HI - Kahana Reef oceanfront 1BR/1BA condominium. Beautiful two-island view, oceanside pool, and BBQs. Low LLNL rates for year-round reservations. 925-449-0761

SOUTH LAKE TAHOE - 3 Bedroom 2 bath Chalet, newly remodeled, nicely furnished, all amenities, close to all skiing. Reserve Now! 209-599-4644

WANTED

S&T AWARDS*Continued from page 1*

Christine Orme, Mary McBride, Aleksandr Noy and Teresa Land.

The group received Laboratory Directed Research and Development (LDRD) funds to continue the biomineralization research with important implications for the biological, geological and materials science communities. "It says a lot about how science is done at the Laboratory," De Yoreo said. "We put together the largest team of solution crystal growth scientists on the globe. That's something the institution is very proud of."

The group's research led to a new understanding of the process biological organisms use to modify crystal shape and growth, forming such complex structures as bones, eggshells and seashells. Results of the research have potential application in a variety of uses including laboratory growth of human and animal bones, industrial scale formation in pipes and the manufacture of toothpaste — any situation in which calcium-based crystals grow naturally or are utilized (see *Newsline*, June 22, 2001).

Jack Campbell, leader of the Lab team that developed a process for manufacturing laser glass for NIF, lauded the Laboratory's willingness to fund cutting edge research projects. "Even if what you propose sounds outrageous," Campbell said, "you generally find the Lab willing to sign up to try it."

Members of the laser glass team include Campbell, a physical chemist, Charles Thorsness, chemical engineer, Tayyab Suratwala, materials scientist, and chemists Paul Ehrmann, Michael Riley and William Steele.

The results of the six-year joint research and development program with Schott Glass Technologies and Hoya Corp. was a "revolutionary" process permitting the manufacture of meter-sized plates of laser glass at a rate 20 percent faster, five times cheaper



FRANK NUNEZ/TID



Director Bruce Tarter and Deputy Director Jeff Wadsworth honored two Lab research teams, one for continuous melting for laser glass (above) and the other for biomineralization and crystal growth. At left are Wadsworth, Aleksandr Noy, Mary McBride, Tarter, Christine Orme, Teresa Land and James De Yoreo. Above: Wadsworth, Jack Campbell, Charles Thorsness, Tarter, Paul Ehrmann, Michael Riley, William Steele and Tayyab Suratwala.

and with better optical quality than previous "one-at-a-time" processes.

NIF, the world's largest and most energetic laser, will require more than 3,000 pieces of laser glass, each about a meter long, 0.5 meter wide and 4 centimeters thick. The neodymium-doped phosphate laser glass is being produced for two football-stadium size laser facilities — NIF and the Laser Mega Joule near Bordeaux, France.

Campbell explained that the continuous laser glass melting process requires seven different operations, carried out in separate vessels that are interconnected, to convert high-purity, powdered raw materials into a continuously moving strip of laser glass.

In the NIF laser, energy will be stored in the special glass and later extracted as high-power optical pulses.

For more information, check the Web at <http://www.llnl.gov/nif/nif.html>



JULIE KORHUMMEL/NEWSLINE

Lab helps Stanislaus sheriff's deputies' detection efforts

Allen Hinkelman (left) of the Alarms and Access Security Group explains the setup of a metal detector to Stanislaus County Deputy Sheriff David Swanson. The Lab recently donated the metal detector to Stanislaus County after upgrading equipment in the Superblock. The Stanislaus County Sheriff's Department plans to use the detector in a county courthouse.



THE BACK PAGE

MLK

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part of the Lab's annual celebration. The winning students, Laura Ochoa and Yancie Davis, are both seniors at Castlemont High School in Oakland, though the competition spanned four counties.

The theme of this year's essay contest, "Your Dream for the New Century: The Relevancy of Dr. King's Vision as We Enter the New Millennium," included a focus on "An Examination of the Aftermath of September 11 as it Relates to the Realization of Dr. King's Dream." The judges were drawn from the ranks of senior Lab management: Ron Cochran, executive officer; Jeff Wadsworth, deputy director for Science & Technology; Dona Crawford, associate director for Computation; and Jan Tulk, associate director for Administration.

Ochoa wrote as part of her essay, "Terrorism is a word full of different meanings and expressed differently by different people. Dr. King would examine the deep roots of rage that motivated the terrorists and find culpability on all sides. He would undoubtedly work for understanding rather than vengeance.

"An amazingly extensive unified nation was seen throughout this tough situation on Sept. 11, as never before. Throughout this tragedy is where Dr. King's accomplishments should come afloat, where what he fought for should come to mind."

Davis' essay also reflected emotions surrounding Sept. 11. "He speaks about how difficult it is to speak against our government in times of war. But, even though these are words from over 30 years ago, the words of Dr. Martin Luther King are very relevant this very moment, in the aftermath of the events of September 11, 2001. Whenever Dr. King spoke, he preached nonviolence. Dr. King was against war altogether. Dr. King was a patriot and a humanitarian. In Dr. King's vision he wanted unity in America, but not at the expense of people's lives. The dream he had is universal, and it is especially relevant in today's world."

Jackson related his talk to the students' essays by reminding the crowd that Martin Luther King's life was certainly one of significance. He told the audience of the lesson he learned from his fifth grade teacher in Richmond, Va., who told the students about the men who hang around the fire in the barrel under the overpass on the edge of town. "She said they had joined the 'fellowship of the unproductive,'" he explained, and talked about his teacher's emphasis on



JULIE KORHUMMEL/NEWSLINE

Scholarship winners Lauren Ochoa with her father, Silverio Ochoa Rocha (left), and Yancie Davis with his mother, Schurniece Thompson. Each student comes from Castlemont High School in Oakland.

defining success not in the traditional terms of wealth, position and power, but in terms of adding to the lives of others.

He challenged the audience to "close the gap between who we are now and who we'll be in the future."

He shared his self-defined six principles for a life of significance, beginning with an attitude of caring and commitment to a purpose. Second, he said, "You must be transformed. Where you are is a direct result of what you think," a message the ordained preacher particularly emphasizes in his monthly prison ministry. As further emphasis of this, he quoted an MTV producer who, when asked if MTV videos influence America's children, answered, "We own your children."

"The more you dwell on a particular idea, the more real it becomes to you," he stated. He challenged the audience again by asking them all what color stop signs in America are. "Red," the audience answered in unison. "What color are yield signs?" he asked. "Yellow," they answered again unanimously.

"For the past 18 years," he informed them, "yield signs in America have been red and white. But when we think slow down, we think yellow."

He challenged them all to stop and consider whether popularly accepted ideas of "good things," such as simply meeting another's required expectations or reaching retirement, should be all that they aspire to.

His third principle was for people to discover their "determined purpose in life," which he defined as, "that thing that you were created for – that thing that you and only you can accomplish in life."

Principle number four was, "Synchronize your calling to your vocation." He said that fear is what keeps people from their calling, and that fear is really just "false evidence that appears real; ideals that stay in people's minds and become their reality."

The fifth principle in Jackson's plan was for each person to develop a personal plan for success. Again directly involving the audience, he asked, "How many of you have a five-year plan, written down, to guide your life? How many of you have a plan for just this year, 2002?" He dismally looked to the first row and said, "Don't bother looking back." Then he asked, "How many of you have a to-do list for today?"

He used these responses to reiterate how easy it is for people to fill their lives with the insignificant, and not concentrate on the significant.

Finally, he said, implementation of the personal plan is the sixth principle for a life of significance. "Sometimes the race goes to the swiftest, sometimes to the one who endures to the end, but it always goes to someone who starts."

The celebration concluded with a rousing performance by the Castler Vocal Ensemble of high school students from the Oakland area.

Videotapes of the entire celebration can be borrowed from AADP, 2-9543.

Art Jackson has shared his leadership principles with the nation's generals, senators, presidents and CEOs. He is a graduate of the U.S. Military Academy at West Point and of Lesley College in Cambridge, Mass. He holds a B.S. in engineering and an M.S. in management. He is continuing his studies toward a master of theology. He is the creator of the seminar series "Mounting Up on Wings of Greatness" and recently released the book, "Lions and Tigers and Bears – Oh, My."

TTEC

Continued from page 1

The center also assists the technology commercialization and transfer programs of Livermore and Sandia labs by promoting and supporting Lab commercialization efforts.

The three companies — ETARAN Instruments, SOX Systems and NanoLogic — are now operating from the Livermore site.

"These companies represent a good cross-section of the type of companies we're planning to serve," said Michael LaLumiere, TTEC's executive director. "While we plan to do a lot of work with companies that aren't affiliated with the labs, these three companies all have a connection to the national labs, which make them prime candidates for TTEC."

ETARAN Instruments, headed by Ed Tarver, a Sandia scientist, develops new methods to improve performance in Ion Mobility Spectrometry. The technology is used in chemical detection and identification and has several current military applications.

SOX Systems has licensed solid oxide fuel cell

technology from Livermore and is developing neighborhood fueling stations for hydrogen-powered vehicles. Experienced entrepreneur and CEO Alvin Duskin is hiring an engineering team and seeking funding.

NanoLogic, led by Robert Schmieder, a former Sandia scientist, is developing a hybrid computing system using nanotechnology-based engineering.

TTEC will begin its Entrepreneurial Seminar Series Feb. 4 with a presentation by Bruce Whitley, an attorney with Crosby, Heafey, Roach & May. His talk will cover the selection of appropriate investors, investment disclosures, securities law implications of investment, the difference between equity and debt, and stock purchase agreements.

At the same time, TTEC will unveil a new outreach program called TTECnet, a service for companies interested in using TTEC services but do not need to move into the facility.

TTEC is a joint effort between the Tri-Valley Business Council, Livermore and Sandia labs, Pacific Gas & Electric Company, the City of Livermore, the office of Rep. Ellen Tauscher and the Department of Energy.



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